

What is claimed is:

9 8 7 6 5 4 3 2 1
1. In a method for manufacturing an ink jet recording head provided with a pressure generating chamber, wherein the pressure generating chamber is constructed of a first plate, a second plate and a third plate, wherein the first plate is provided with a through-hole and sandwiched between the second plate and the third plate, the method comprising a step of forming said through-hole in said first plate, the improvement which comprises, in said step, the sub-steps of:

15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
forming a first resist film and a second resist film on a first and a second surface of said first plate, respectively, wherein said first resist film and said second resist film assume substantially a same shape, but are different in length from each other when measured in a direction parallel to a flow direction of ink; and

15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
forming said through-hole in said first plate by etching both said first and said second surface of said first plate with the use of said first resist film and said second resist film both of which serve as masks in said etching processing of said first plate.

1 2 3
2. The method for manufacturing the ink jet recording head provided with the pressure generating chamber according to claim 1, wherein:

4 a thickness of said first plate is approximately $140\mu\text{m}$; and
5 a difference in length between said first resist film and said
6 second resist film is within a range of from approximately 80 to
7 approximately $140\mu\text{m}$.

3. In a method for manufacturing an ink jet recording head provided with a pressure generating chamber, wherein the pressure generating chamber is constructed of a first plate, a second plate and a third plate, wherein the first plate is provided with a through-hole and sandwiched between the second plate and the third plate, wherein one of said second plate and said third plate is provided with an ink outlet passage in its ink discharge side, the method comprising a step of forming said ink outlet passage in said ink discharge side of said one of said second plate and said third plate, the improvement which comprises, in said step, the sub-steps of:

forming a first resist film and a second resist film on a first and a second surface of said first plate, respectively, wherein said first resist film and said second resist film assume substantially a same shape, but are offset from each other in a direction parallel to a flow direction of ink; and

forming said through-hole in said first plate by etching both said first and said second surface of said first plate with the use of said first resist film and said second resist film both of which serve as masks in said etching processing of said first plate.

4. The method for manufacturing the ink jet recording head provided with the pressure generating chamber according to claim 3, wherein:

a thickness of said first plate is approximately $140\mu\text{m}$; and said first resist film and said second resist film are offset from each other by a value ranging from approximately 40 to approximately $70\mu\text{m}$.

1 5. In an ink jet recording head provided with a pressure
2 generating chamber, wherein the pressure generating chamber is
3 constructed of a first plate, a second plate and a third plate,
4 wherein the first plate is provided with a through-hole and
5 sandwiched between the second plate and the third plate, the
6 improvement wherein:

7 said through-hole is formed in said first plate by
8 etching both a first and a second surface of said first plate, and
9 therefore constructed of a first hole portion and a second hole
10 portion thus formed through said etching processing, wherein said
11 first hole portion and said second hole portion assume
12 substantially the same shape, but are different in length from each
13 other when measured in a direction parallel to a flow direction
14 of ink within said pressure generating chamber.

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1 6. In an ink jet recording head provided with a pressure
2 generating chamber, wherein the pressure generating chamber is
3 constructed of a first plate, a second plate and a third plate,
4 wherein the first plate is provided with a through-hole and
5 sandwiched between the second plate and the third plate, wherein
6 one of said second plate and said third plate is provided with an
7 ink outlet passage in its ink discharge side, the improvement
8 wherein:

9 said ink outlet passage is formed in said third plate
10 by etching both a first and a second surface of said third plate,
11 wherein said ink outlet passage is constructed of a first passage
12 portion and a second passage portion each assuming a substantially
13 semispherical shape, wherein said first passage portion and said
14 second passage portion are offset from each other in a direction

15 parallel to a ¹⁹flow direction of ink.

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